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10/039,481	01/08/2002	Yaacov Almog	1149/63502	1737

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INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

RODEE, CHRISTOPHER D

ART UNIT	PAPER NUMBER
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1756

MAIL DATE	DELIVERY MODE
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09/05/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/039,481

Applicant(s)

ALMOG, YAACOV

Examiner

Christopher RoDee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 47-66 is/are pending in the application.
- 4a) Of the above claim(s) 59-62 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 47-58 and 63-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 13 July 2007 has been entered.

Election/Restrictions

Newly submitted claims 59-62 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

The inventions of claims 47-58 and the inventions of claims 59-62 appear to be related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case process can be practiced by hand.

The inventions of claims 59-62 and claims 63-66 are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, the subcombination of claims 63-66

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has separate utility such as in an ionographic imaging system or in a hand operated imaging process. See MPEP § 806.05(d).

The examiner has required restriction between subcombinations usable together. Where applicant elects a subcombination and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

The subject matter of claims 59-62 is directed to a system having components (A) and (B). It appears to the Examiner that this system represents a claim to an apparatus. The Examiner discussed the meaning of the "system" claim in a telephone interview on 10 August 2007. Pending any other definitive meaning, the Examiner informed counsel that the claim would be considered as an apparatus, such as a process cartridge.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 59-62 are withdrawn from consideration as being directed to a non-elected invention. The constructive election continues in this RCE. See 37 CFR 1.142(b), MPEP § 821.03, and MPEP § 818.02(a).

Priority

The Cross Reference to Related Applications on specification page 1 contains an incorrect date for US Application 08/583,009. The US application was filed 26 January 1996.

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A new, corrected statement of priority including the immediate parent application is required in response to this Office action.

Specification

A substitute specification including the claims is required pursuant to 37 CFR 1.125(a) because of amendments to the specification and variant page numberings throughout prosecution.

A substitute specification must not contain new matter. The substitute specification must be submitted with markings showing all the changes relative to the immediate prior version of the specification of record. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. An accompanying clean version (without markings) and a statement that the substitute specification contains no new matter must also be supplied. Numbering the paragraphs of the specification of record is not considered a change that must be shown.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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Claims 47, 48, 50-58 and 63-66 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The instant claims specify toner particles that comprise a core (i) and a coating (ii). The core is disclosed as being unchargeable by a charge director or chargeable to less than or equal to 103 pmho/cm (independent claims 47 and 63) or less than or equal to 86 pmho/cm (dependent claims 48 and 64). Although these charge features are present for the coated core they are not present for the uncoated core, as specified in the instant claims. The specification teaches that the particle conductivity is the difference between the high field and low field conductivities (spec. p. 9, l. 35-40). Table 5's Run 2 has a particle conductivity of 86 pmho/cm (i.e., 98 – 12: high field – low field) and Run 3 has a particle conductivity of 103 pmho/cm (i.e., 115 – 12: high field – low field). Each of these measurements is made using a core coated with 10% or 20% of A291A ionomer. Thus, the particle tested in Runs 2 and 3 represents the combination of core (i) and coating (ii) in the instant claims and not just core (i). The claims limit the conductivity of the core to value shown only for a coated core. Consequently, the claimed as presented contain new matter.

Parenthetically, the calculation of these values is present in the immediate parent and is not present in this application as filed. To provide proper correspondence between the claims and specification as required by 37 CFR 1.75(d)(1), any of the conductivity values currently present in the claims and retained after any potential amendment must be properly set forth in the specification.

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Claims 47-58 and 63-66 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The new claims state that the coating (ii) of each of the toner particles is sufficient to result in "similar chargeability" for the toner particles in the first and second liquid toners. The instant specification on page 7, lines 24-30 discloses the chargeability of toners having different colors. Specifically, "When the particles are coated by an ionomer, or by an uncolored layer of some other chargeable polymer, the chargeability is the same for all colors." The specification requires the chargeability to be the same, not similar. Similar chargeability includes such disparate charge situations as the same magnitude but opposite polarity (i.e., positive versus negative), similar but different charge value (e.g., $-20 \mu\text{C/g}$ and $-22 \mu\text{C/g}$), and similar "charge-up" rates but different final charge. The specification as filed only discloses one relationship between toner charges for toners of different color – they are the "same". Similar is not disclosed. The claims contain new matter as currently presented.

Claims 47-58 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The instant claims include two steps: (i) charging a latent electrostatic image on a photoconductive surface and (ii) applying to the photoconductive surface at least first and second liquid toners. The Examiner has carefully reviewed the specification as filed for basis for these claims. The specification does not disclose any process where a latent image is charged

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and then applying liquid toners to this charged image. The specification does disclose forming a charged electrostatic latent image and developing it with a liquid toner (spec. p. 6, l. 4-10), but there is no disclosure of charging the image or applying two liquid toners to either a charge image (as claimed) or to an electrostatic latent image. The Examiner recognizes that electrostatic latent images of different polarities are known (e.g., tri-level electrophotography) and can be developed by different toners but there is no disclosure of such a process in the instant specification or a disclosure of using such an image when the toners have the same chargeability.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 47-58 and 63-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over EPA 176 630 in view of Whitbread in US Patent 3,325,409, further in view of Handbook of Imaging Materials to Diamond, p. 233, Metcalfe in US Patent 3,078,231, and Wagner in US Patent 3,438,904, and finally in view of Materazzi in US Patent 5,116,705.

The European document discloses a liquid toner and method of making and using the toner. The liquid toner comprises a pigment coated with an ionomer resin (an anionic addition polymer) such as Copolymer D. The acid groups of the ionomer may be those discussed on page. The ionomer enhances the chargeability of the pigment particles by giving stability to the toner charge (EP pp. 1-2). The coated pigment is dispersed in a carrier liquid. See Examples. The EP reference prepares the liquid toner by either precoating the pigment particles with the ionomer or dispersing the pigment into the non-polar carrier liquid and then adding the ionomer

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which appears to adsorb onto the pigment (p. 13; Examples). Because the ionomer remains on the pigment particle it appears to be insoluble in the carrier liquid at room temperature. The liquid developers are used in conventional developing processes of charging, imaging, developing, and transferring.

The reference does not disclose a pigmented polymer, does not disclose a charge director in the process of making the liquid toner, and does not disclose plural liquid toners where the liquid toners' toner particles have similar chargeability.

Whitbread discloses a pigment used in a liquid toner, which comprises a mixture of a hydrogenated rosin and carbon black or phthalocyanine blue. This pigment is dispersable in the carrier liquid (cols. 1-2). Whitbread discloses the hydrogenated rosin/pigment mixture as providing high contrast images, which are scuff resistant when dried (col. 1, l. 37-42).

Metcalfe discloses that pigment particles do not necessarily have the necessary and required charge for a desired development process and thus charge control agents (i.e., compounds which adjust the charge of the pigment in the carrier liquid) are coated onto the pigment to give the requisite charge (col. 1, l. 51-54; col. 1, l. 62-col. 2, l. 20).

Diamond discloses charge directors as commonly employed in the art to impart the desired charge to the liquid developer (p. 233).

Wagner teaches that pigment coatings differ the charge polarity of the pigment because these components change the surface charging characteristics of the pigment (see Wagner col. 5, l. 37-42).

Materazzi teaches that a disadvantage of color liquid toners is that the toner are not usefully blendable to form a distinct process color because the toners have different electrophoretic mobility. This gives selective depletion an multiple images are produced (col. 2, l. 5-11). The reference teaches the artisan that identical electrophoretic mobility is desirable

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(col. 2, l. 12-18). Materazzi also teaches useful conductance of the toners in Table 6. These values range from about $3\frac{1}{2}$ to about $5\frac{1}{2}$ pmhos/cm (col. 9).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the pigment of Whitbread as the pigment in the European document because Whitbread discloses the hydrogenated rosin/pigment mixture as providing high contrast images, which are scuff resistant when dried. The artisan would recognize that the resin coating in the European document is applied to the pigment to impart the desired charge to a pigment particle (paragraph spanning pp. 1-2; note a similar principle in Metcalfe) and thus the artisan would reasonably conclude that the charge on the pigment particle of Whitbread could be controlled by the ionomer resin coating of the European document. Thus the artisan would obtain by the combination high contrast images, which are scuff resistant while obtaining the charge characteristics of the European document. It would also have been obvious to add a charge director to the liquid developer because Diamond discloses charge directors as well known components to produce the desired charge on the toner. The addition of the ionomer resin to the pigment in the European document (EP p. 13) would have been expected to differ the charge polarity of the pigment because these components would change the surface charging characteristics of the pigment (see Wagner col. 5, l. 37-42). It would also have been obvious to heat the ionomer during the coating when the ionomer becomes adsorbed because this would enhance the ability of the ionomer to come in contact with the pigment particles and then cooling would also have been obvious in order to retain the ionomer on the pigment particle (see dependent claim 34). The artisan would have been expected to optimize the amount of ionomer coating given the guidance on EP p. 8, which suggests from 2 to 50 weight percent of the ionomer, particularly at the specified lower limit (see dependent claims 41-43). The applied references are all concerned with the development of electrostatic latent

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images. Thus the artisan would produce the toner to have develop the images be providing the toner materials with suitability chargeability.

The Examiner notes that Whitbread combines rosin and pigment to produce scuff resistant images when dried (col. 2, l. 21-25). The artisan seeking to obtain this advantage while controlling the charging to a specific degree such as taught by the EP reference would have ample motivation to combine the references to obtain the combination of scuff resistance and controlled chargeability by the references. The art clearly indicates that the artisan would know that toner particles can be coated to obtain the desired charge for a specific application. Metcalfe teaches that pigment particles do not necessarily have the necessary and required charge for a desired development process and thus charge control agents (i.e., compounds which adjust the charge of the pigment in the carrier liquid) are coated onto the pigment to give the requisite charge. The body of art is such that the artisan would recognize that the pigmented particles are known to provide certain advantages (e.g., Whitbread's high contrast, scuff resistant images). The artisan would also recognize that the art teaches that coating the particle with an ionomer, as in the EP reference, can modify the charge of toner particles. The artisan would have found it obvious to optimize the amount of the ionomer coating to give the desired charge characteristics on the toner.

It would also have been obvious to produce a plurality of liquid toners with the same or similar charging characteristics because Materazzi teaches that this is desirable in order to not have selective depletion of one color liquid toner during development of electrostatic latent images.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher RoDee whose telephone number is 571-272-1388. The examiner can normally be reached on Monday to Thursday from 5:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher RoDee/
Primary Examiner
Art Unit 1756

cdr
22 August 2007